इंटरनेट मानक

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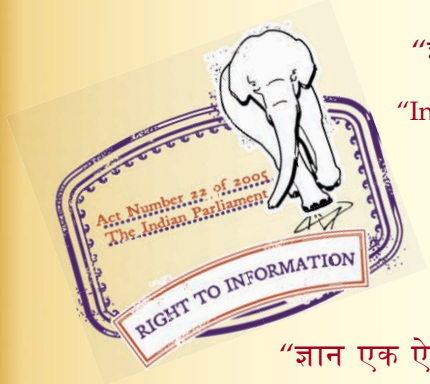
"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 3600-1 (1985): Method of Testing Fusion Welded Joints and Weld Metal in Steel, Part 1: Cruciform fillet weld tensile test [MTD 11: Welding General]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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(Reaffirmed 2003)

Indian Standard

METHOD OF TESTING FUSION WELDED JOINTS AND WELD METAL IN STEEL

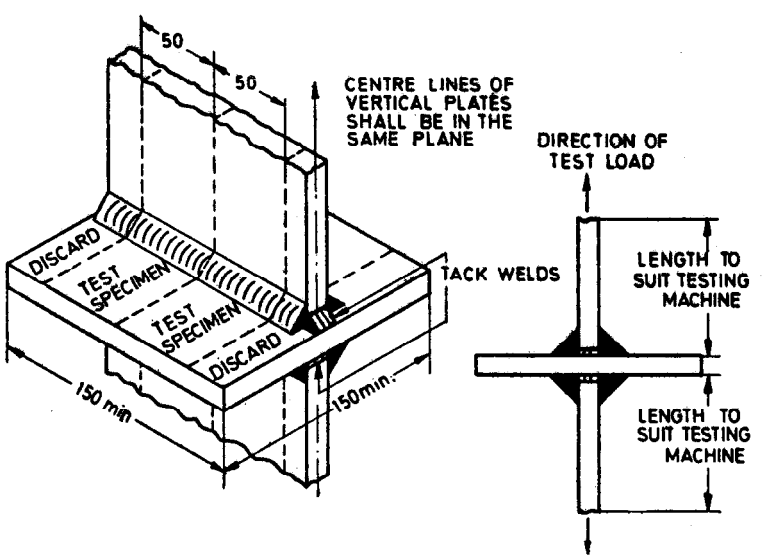
PART 1 CRUCIFORM FILLET WELD TENSILE TEST

(Second Revision)

1. Scope — Covers the procedure for carrying out the cruciform test to determine the relative tensile strength under static loading of joints employing fillet welds between plates. This test should be preferably be supplemented by the use of macro examination of cross-sections of the joints covered in IS : 3600 (Part 9) - 1985 'Method of testing fusion welded joints and weld metal in steel: Part 9 Macro and Micro examination'.

2. Definitions — For the purpose of this standard, the definitions given in IS : 812-1957 'Glossary of terms relating to welding and cutting of metals shall apply'.

3. Preparation of Test Piece and Test Specimens — The test piece shall be made from plate of full thickness. The test piece and test specimens shall be prepared according to the shape and dimensions given in Fig. 1. The plate thickness, fillet leg length, welding procedure, penetration, etc, however, shall be as specified in the appropriate application standard. The length of the specimens shall be chosen as to suit the particular testing machine.



1A 1B

All dimensions in millimetres.

1A Test Piece and Method of Cutting Test Specimens
1B Method of Testing Specimens

FIG. 1 CRUCIFORM TEST PIECE, SPECIMENS AND METHOD OF TESTING

4. Separation of Test Specimens — The method employed for the separation of the test specimens shall be such as to cause minimum deformation and minimum heating. The best method is usually by machining. If thermal cutting or other method which could effect the cut surfaces are used, the cuts shall be made at a distance from the test specimens greater or equal to 8 mm but in any case sufficient according to the process used, not to induce alterations which could alter the test results.

5. Heat Treatment — Test specimens shall be heat-treated only if the welded part they represent is heat-treated, in which case they shall, where possible, be heat-treated together with the welded part before the test. Where this is not possible, the specimens shall be heat-treated separately, the treatment and the rate of cooling being similar to that given to the part.

6. Testing — The specimens shall be tested in tension with the load applied in the direction indicated in Fig. 1. Care shall be taken that the centre lines of the vertical plates are in the same plane. The inner edges of the outer discards should be prepared for macro examination.

Adopted 14 February 1985

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

7. Reporting of Results — The following shall be reported as results of the test:

a) Thickness of parent metal;

b) Throat thickness and leg length of weld;

c) Location of the fracture, whether in the weld, in the heat-affected zone or in the parent metal. If the fracture is in the parent metal its appropriate distance from the weld junction shall be stated; and

d) Description of the appearance of surfaces subjected to macro examination and the type and location of any weld flaws present.

EXPLANATORY NOTE

This standard was first published in 1966 and subsequently revised in 1973 covering various tests on fusion welded joints and weld metal in steel. In view of the experience gained and in order to bring the test and test requirements in line with other International Standards published so for, it has been decided to revise the standard in the following parts:

Part 1 Cruciform fillet weld tensile test
Part 2 Beam impact (Charpy V-notch) test
Part 3 Transverse tensile test on butt welds
Part 4 Longitudinal tensile test on cylindrical weld metal test pieces on butt welds
Part 5 Transverse root and face bend test on butt welds (corresponding to ISO 5173-1981)
Part 6 Transverse side bend test on butt weld (corresponding to ISO 5177-1981)
Part 7 Longitudinal root and face bend test on butt welds
Part 8 Nick break test and fillet weld fracture test
Part 9 Macro and micro examination.

In this revision free-bend test has been deleted as the ductility of the weld zone is being assessed more and more by other bend tests. Special tests such as tests for the susceptibility to lamellar tearing, reheat cracking, brittle fracture and creep fatigue will be covered in separate standards.

The main purpose of this standard is to recommend test procedures and test specimens that should be quoted or incorporated in engineering application standards that deal with welded constructions primarily for the qualification of welding procedures and operators. Where differences still exist between application standards, the methods of test given in this standard should be prefered.

A general indication is given of the purpose served by the tests specified in this standard but this standard does not indicate the choice of test method nor a particular application nor the number of specimens to be tested or the repeat tests to be allowed in the event of failure. Such requirements are matters to be dealt with in the particular application standards where they exist or to be agreed between the manufacturer and the purchaser.

It should be realized that variations in welding procedure and the preparation of test specimens can give rise to variations in the test results.

In preparing this part of the standard assistance has been derived from, BS : 709-1983 'Destructive testing fusion welded joints and weld metal in steel' issued by British Standards Institution.

In reporting the result of a test on analysis made in acccordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960 Rules for rounding off numerical values (*revised*)'.